

Title: Feedbacks in the Climate System

Short Outline

FLUXNET sites provide data of carbon exchange for ecosystems all over the world. We propose to combine carbon exchange data with data on nitrogen exchange and deposition to gain insights into the relationships and feedbacks that exists between the carbon and nitrogen cycle in natural ecosystems. Identified relationships and feedbacks will be incorporated into a fully coupled dynamic vegetation model, LPJ-GUESS, and verified on the local and regional scale. This will further allow us to identify potential regions and/or types of ecosystems and climates in which the coupling of the carbon and nitrogen cycle is strongest. Eventually, the improved version of LPJ-GUESS will be coupled to a global climate circulation model, EC-Earth, to analyse the feedbacks of the nitrogen and carbon cycle on the climate system.

Initial coordinator and proposing group

Katrin Fleischer	VU, Amsterdam, the Netherlands
Han Dolman	VU, Amsterdam, the Netherlands

Co-promoters

Michiel van der Molen	VU, Amsterdam, the Netherlands
Karin Rebel	UU, Utrecht, the Netherlands

Project partner

Almut Arneth	LU, Lund, Sweden
--------------	------------------

CVs of PhD student and promoter

Katrin Fleischer started as a PhD student in May 2010. Her research concerns the interactions between the nitrogen and carbon cycle, whereby insights shall be used to identify regions and areas of the world where these interactions are strongest. The vegetation model that incorporates the interaction will be coupled to a global climate circulation model to analyse feedbacks in the climate system.

Han Dolman has more than 20 years experience in land surface atmosphere interaction measurement and modelling research. He is presently head of the Department of Hydrology and Geoenvironmental Science at the VUA - Faculty of Earth and Life Sciences. He has over 70 publications in internationally refereed journals. He is member of various international committees and active in GEWEXISLSCP, and IGBP, IAHS and EGS. He is co-ordinator of the regional component of CarboEurope IP and was chairman of the CarboEurope cluster from 2001 to 2003 and is currently member of the executive board. He is involved in several EU and national projects among which the TCOS-Siberia project. In April 2005 he organised a CarboEurope GHG (concerted Action) workshop at the Dutch Royal Academy of Sciences on developing a blueprint for a GHG observing system for Europe.

Sites that initially would be involved

All possible sites that have records of carbon exchange would be used in this study. Sites will need to represent different vegetation types, environmental conditions and climate regions.

Rules applied for co-authorship

Persons that have contributed data and/or have given intellectual input to the paper will be contacted to invite them for co-authorship.